

**\*78479\***

Page 1

**\*N900040100\***

Setup Start \*NS1\*

Stop **\*NS2\***

20

**\*14\***

**Cust Item ID:**

**\*14\***

**Customer:**

Run Start \*NR1\*

Date: 12/01/10 Tooling:

Date:

Stop \*NR2\*

Date:

**SPC (Y/N):**

Date:

**Insp.  
Stamp**

Rev D

0.00

FLOW WATER JET

## Memo

0.00

1-Cut as per Dwg D2916 Dwg Rev: D Prog Rev: D 2-  
Deburr if necessary

QC2- Inspect parts off machine FAI/FAIB

0.00

361 RQ

9210121

21 c

## Memo

0.00

0.00

## HAAS CNC VERTICAL MACHINING #1

## Memo

0.00

BATCH: Not engraved 1-Mill as per Folio FB077 Rev: AA  
& Dwg D2916 Rev: P 2-Deburr per dwg D2916

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 78479




January-10-12 9:52:49 AM

**\*78479\***

Page 2

Item ID: D2916-7 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Cable Guard, 212 Skidtube  
 Start Date: 10/01/2012 Start Qty: 14.00 **\*14\*** Cust Item ID:  
 Required Date: 24/01/2012 Req'd Qty: 14.00 **\*14\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 <b>*130*</b> QC Quality Control	QC2- Inspect parts off machine FAI/FAIB  Memo	0.00 0.00				21	0		
140 <b>*140*</b> QC Quality Control	QC8- Inspect parts - second check  Memo	0.00 0.00		SL 12-01-18					
150 <b>*150*</b> Packaging Packaging	Identify as per dwg & Stock Location   Memo	0.00 0.00							 (21X) 12-01-18

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**\*78479\***

Page 3

**\*N900040100\***

Setup Start \*NS1\*

Stop \*NS2\*

**\*14\***

**Cust Item ID:**

**\*14\***

**Customer:**

**Reference:**

Date:

Run Start \*NR1\*

**SPC (Y/N):**

Date:

Stop **\*NR2\***

**Insp.  
Stamp**

0.00

**\*160\***

QC

## Memo

0.00

## Quality Control

Qty Number Stamp

12 11/18 21

21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

January-10-12 9:52:54 AM

Page 1

Work Order ID: 78479

\*78479\*

Parent Item: D2916-7

\*D2916-7\*

Parent Item Name: Cable Guard, 212 Skidtube

Start Date: 10/01/2012

Required Date: 24/01/2012

Start Qty: 14.00

Required Qty: 14.00

Comments:

IPP Rev:A New Issue 06-06-19 JLM  
IPP Rev:B Now water jet 06-07-14 EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

MUHMWB10

Purchased

No

100

sf

559.6443

0.26

3.831579

5.5

\*MUHMWB10\*

\*\*

1812-1-10

UHMW 1" Black

Location

Loc Qty

Loc Code

MAT018

300

120035

300

120036

MAT019

259.6443158

117321

74.6

117738

95.8

117819

83.3

118814

1.5

119145

4.44431579

(21)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

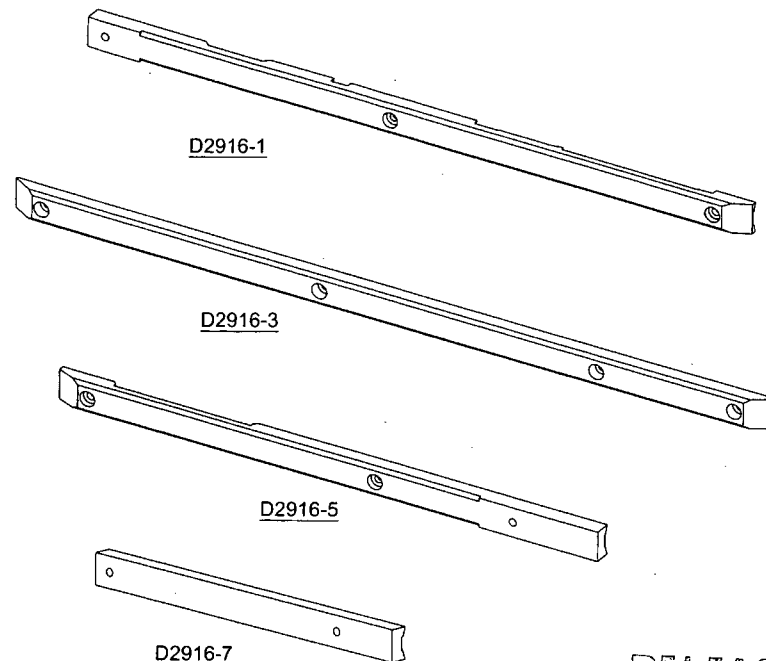
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



SHOP COPY  
 RETURN TO  
 ENGINEER TO  
 UNCONTROLLED COPY  
 SUBJECT TO AMENDMENT  
 WITHOUT NOTICE  
 WORK CENTER  
 NO. 38479 M.C.J  
12/01/10



NOTES:

- 1) MATERIAL: UHMW BLACK TIVAR 1000 VIRGIN MATERIAL  
REF DART SPEC MUHMB10
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK ALL UNMARKED RADII 0.020 TO 0.040
- 6) IDENTIFICATION: ENGRAVE P/N ON LOWER SIDE TO MAX DEPTH OF 0.010 AND MIN RADIUS OF 0.010
- 7) WEIGHT:  
 D2916-1 = 1.37 lbs  
 D2916-3 = 2.33 lbs  
 D2916-5 = 1.19 lbs  
 D2916-7 = 0.96 lbs
- 8) ENGRAVE TWO DART LOGOS (OPPOSITE AS SHOWN) ON UPPER SIDE TO MAX DEPTH OF 0.015 AND MIN RADIUS OF 0.250
- 9) MACHINE CONSTANT SECTION A-A
- 10) MACHINE CONSTANT SECTION B-B
- 11) MACHINE CONSTANT SECTION C-C
- 12) MACHINE CONSTANT SECTION F-F
- 13) MACHINE CONSTANT SECTION G-G
- 14) 25° ANGLE OF TRANSITION BETWEEN SECTIONS WITH MIN RADIUS OF 0.50
- 15) 50° ANGLE OF TRANSITION BETWEEN SECTIONS WITH MIN RADIUS OF 0.50
- 16) MACHINE SLOT WITH 0.063 RADIUS OF TRANSITION BETWEEN SECTIONS
- 17) ALL HOLES DRILLED ON CENTERLINES

RELEASED  
 2011-11-02  
*MP*

D	REVISE MACHINE SLOT. (ZN C5-2, C4-4, C4-5, C6-5) REVISE SECTIONS D-D, L-L, N-N	RF	11.10.07
C	REVISE D-D: ADD L-L, M-M & N-N; FOR D4405-041/-043 COMPATIBILITY	RF	11.08.17
B	ADD K-K FOR D2521 COMPATIBILITY	CP	00.02.24
A	NEW ISSUE	CP	99.09.29
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>[Signature]</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>[Signature]</i>	D2916	SHEET 1 OF 6
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	CABLE GUARD	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

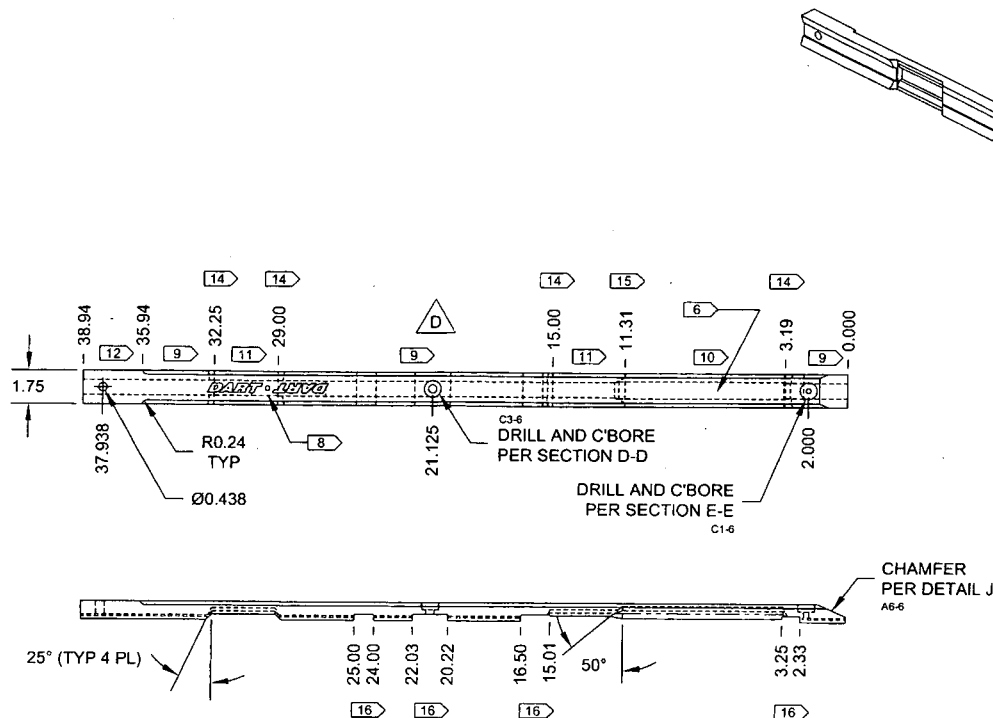
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

72479



**D2916-1**

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2011-11-02  
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

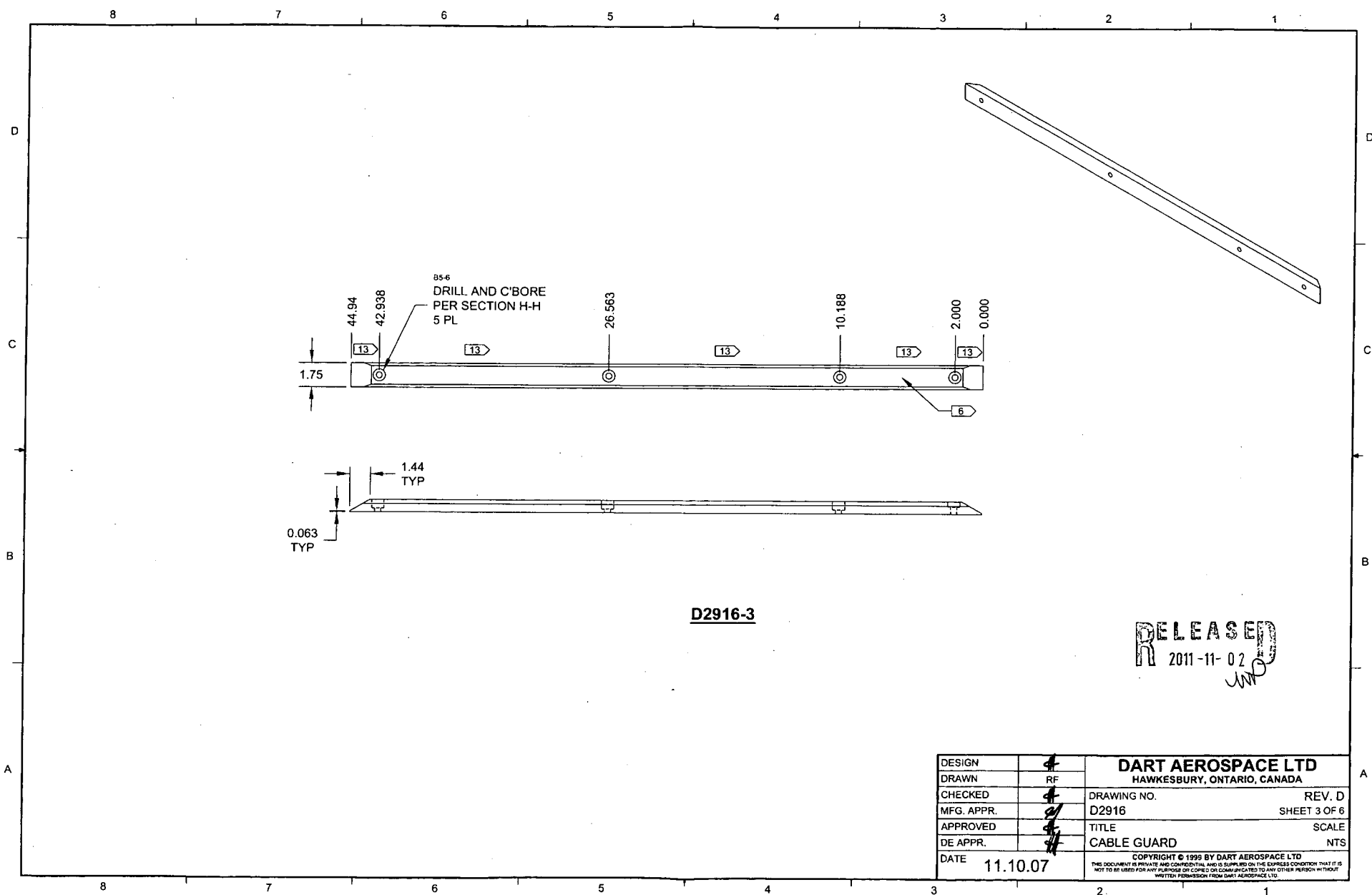
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

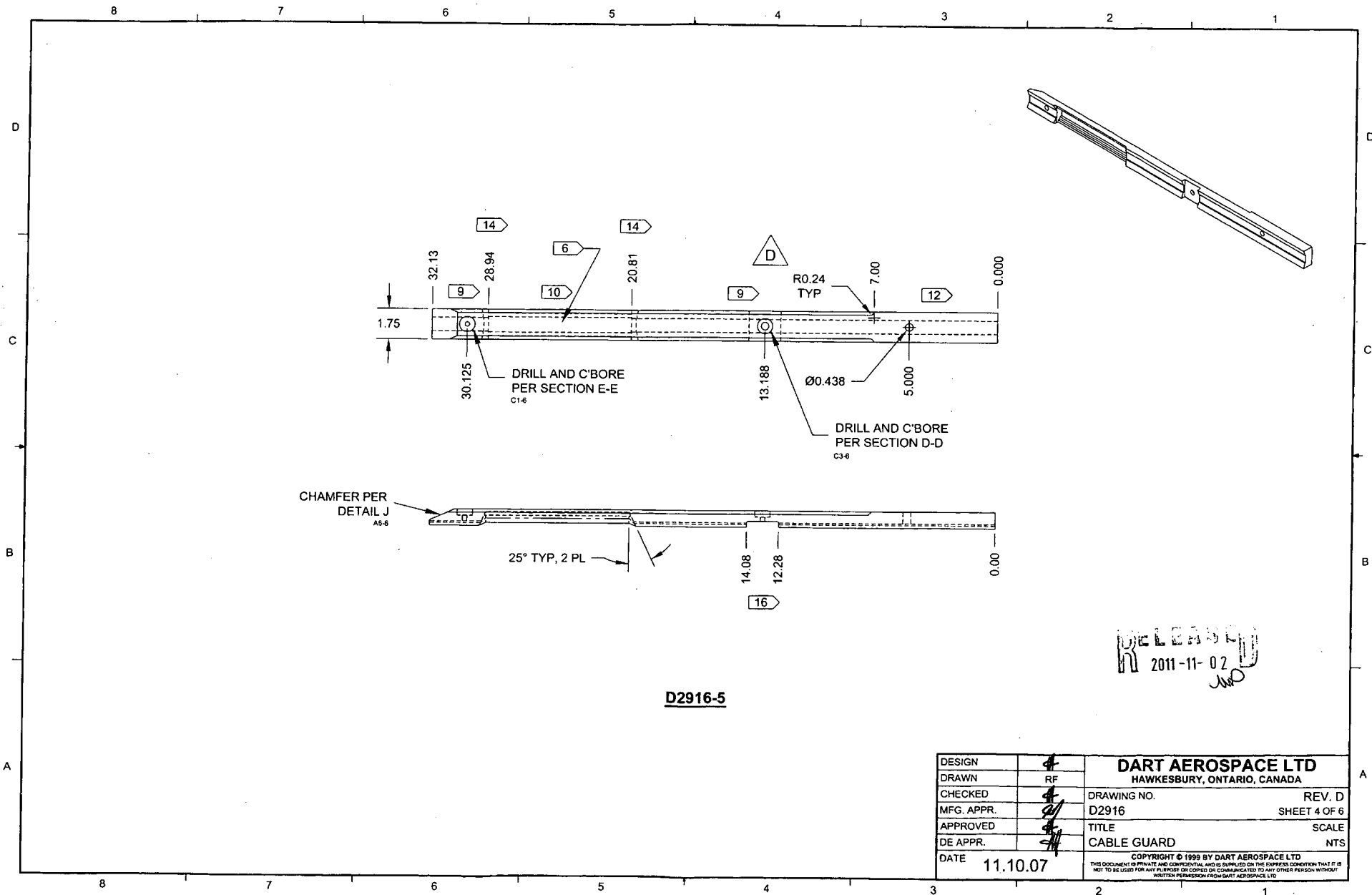
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

78479



**D2916-5**

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2011-11-02  
JMD

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

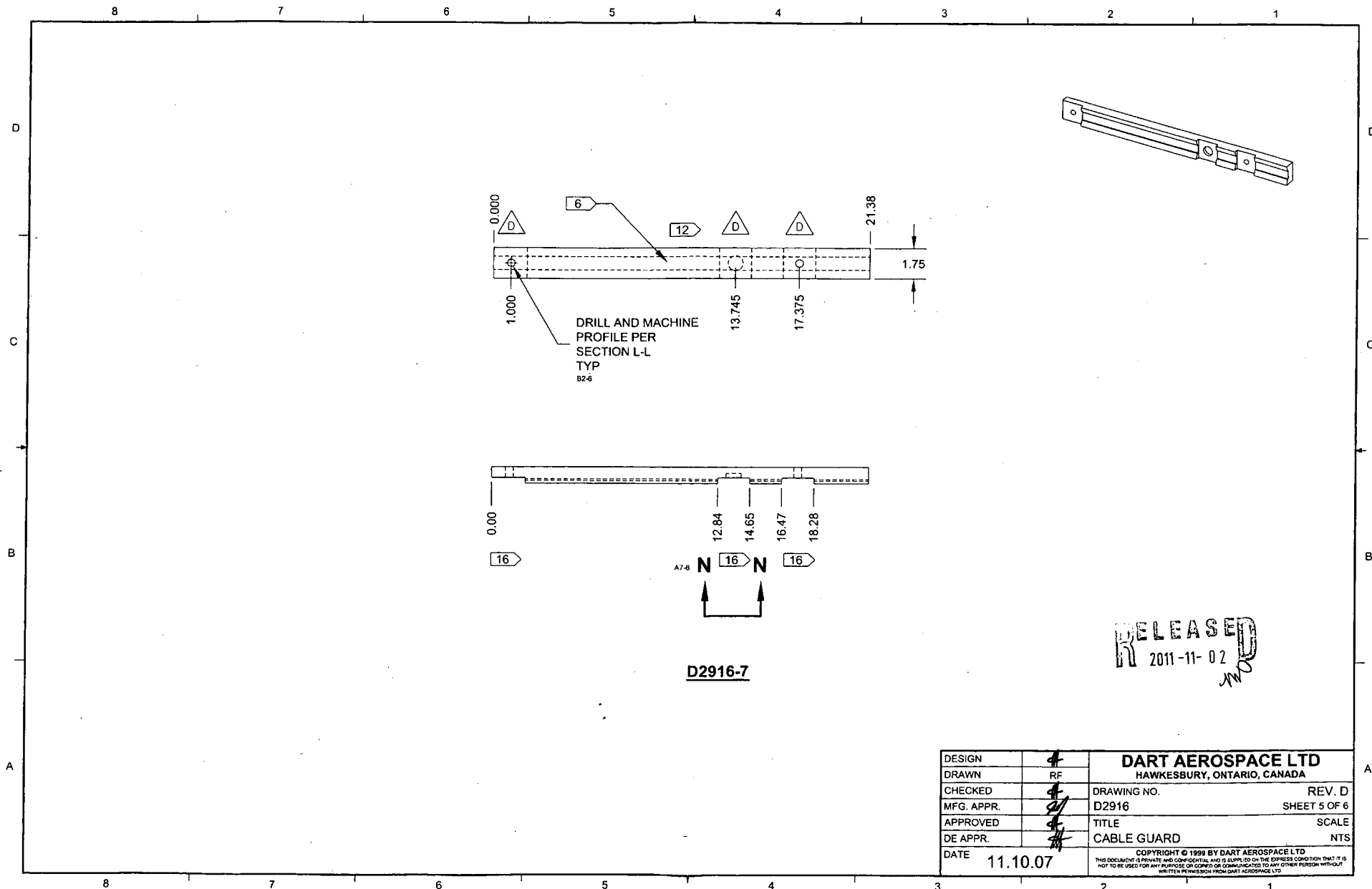
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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DESIGN	4	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
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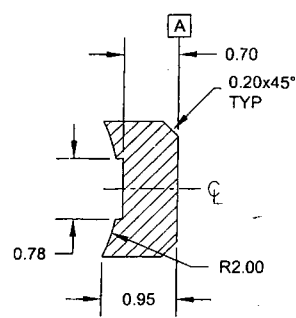
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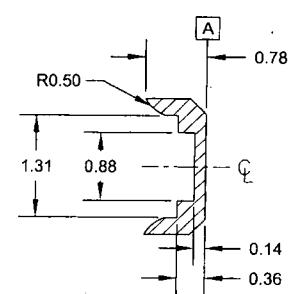
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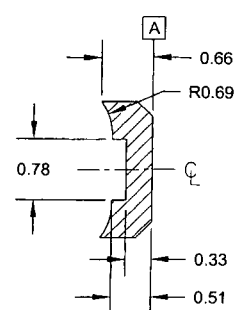
78479



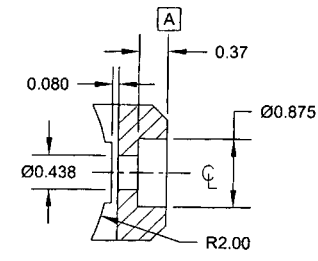
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C3-2  
C6-2  
C4-4  
C6-4



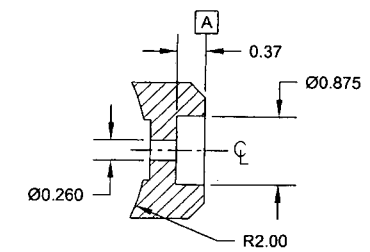
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C5-4



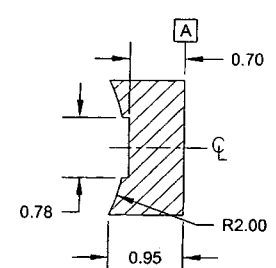
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C4-2



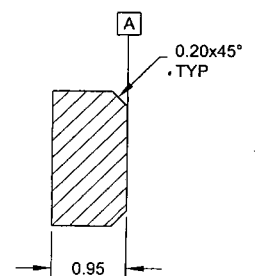
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C3-4



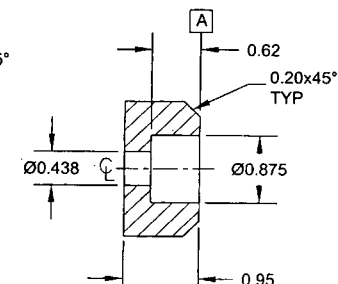
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C5-4



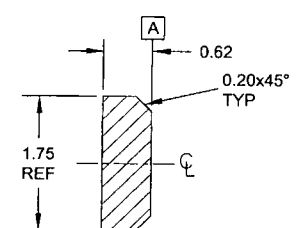
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C6-2  
C3-4  
C5-5



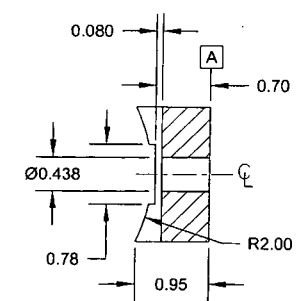
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C3-3  
C4-3  
C5-3  
C6-3  
C7-3



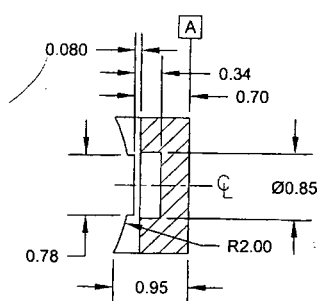
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C6-3



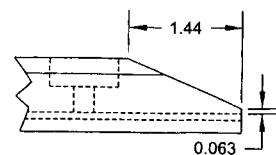
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SCALE 4X  
B3-2  
B4-2  
B5-2



**SECTION L-L**  
SCALE 4X  
C5-5



**SECTION N-N**  
SCALE 4X  
B6-5



**DETAIL J**  
SCALE 4X  
B3-2  
B7-4

RELEASED  
2011-11-02

DESIGN	#	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	#	DRAWING NO.	REV. D
MFG. APPR.	#	D2916	SHEET 6 OF 6
APPROVED	#	TITLE	SCALE
DE APPR.	#	CABLE GUARD	NTS
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b> 48479
<b>Description:</b> Cable Guard, 2125kwhlube	<b>Part Number:</b> 2916-7
<b>Inspection Dwg:</b> 2916 <b>Rev:</b> D	<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.000	$\pm .010$	1.008	✓		Dial Caliper	EG 05
13.745	$\pm .010$	13.745	✓			
17.375	$\pm .010$	17.375	✓			
1.75	$\pm .03$	1.750	✓			
21.38	$\pm .03$	21.360	✓			
12.84	$\pm .03$	12.840	✓			
14.65	$\pm .03$	14.650	✓			
16.47	$\pm .03$	16.470	✓			
18.28	$\pm .03$	18.280	✓			
.080	$\pm .010$	.080	✓			
.78	$\pm .03$	.780	✓			
.95	$\pm .03$	.940	✓			
2.2.00	$\pm .03$	2.00	✓			
Ø.45	$\pm .010$ $\pm .004$	.849	✓			
.70	$\pm .03$	.698	✓			
.34	$\pm .03$	.340	✓			

<b>Measured by:</b> 361 Rq	<b>Audited by:</b> [Signature]	<b>Preliminary Approval:</b>
<b>Date:</b> 12/01/17	<b>Date:</b> 12-01-18	<b>Date:</b>

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

10.04.15